

Remarks

The above Amendments and these Remarks are in reply to the Office action mailed July 8, 2005.

Currently, claims 1-40 are pending. Claims 13-20 and 27-40 were previously withdrawn from consideration pending examination of the generic claims indicated in the restriction requirement. Applicants respectfully request reconsideration of claims 1-12 and 21-26.

I. Amendment to Title

The title of the invention has been amended to recite "Switch-Based Storage Services." It is respectfully submitted that the amended title is descriptive and clearly indicative of the invention to which the claims are directed. Withdrawal of the objection to the title is therefore requested.

II. Objection to Claims 25-26

Claims 25-26 were objected to as being dependent upon a rejected base claim, but indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants thank the Examiner for the indication of claims 25 and 26 as including allowable subject matter.

Claim 25, however, is an independent claim and claim 26 depends from claim 25. Accordingly, it is respectfully submitted that the objection is improper. There being no proper objection or rejection of claim 25, a notice of allowability as to claims 25 and 26 is respectfully requested.

III. Rejection of Claims 1-10 and 21-24 under 35 U.S.C. § 103(a)

Claims 1-10 and 21-24 were rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,209,023 (*Dimitroff*) in view of US Patent No. 6,195,703 (*Blumenau*). Because *Dimitroff* and *Blumenau*, either alone or in combination, fail to teach or suggest each of the limitations of claims 1-10 and 21-24, Applicants assert that these claims are patentable over the cited art.

Claims 1-10

Claim 1 recites:

performing, by the switch, the storage service without further involvement from the device, including transmitting any data required to be transmitted as a result of performing the storage service without buffering the data. *Emphasis added.*

It is asserted in the Office Action that *Dimitroff* discloses each limitation of claim 1, except for “using a switch for routing host request to storage device.” Applicants respectfully disagree. *Dimitroff* does not disclose the performance of a “storage service” as recited in claim 1. Moreover, *Dimitroff* does not disclose the performance of a storage service “by the switch,” as further recited in claim 1.

Applicants describe in their specification that “storage services” include such things as “local mirroring, mirroring over slow link, snapshot, virtual target cloning (replication), third party copy, periodic snapshot and backup, and restore.” *Specification*, p. 52, ¶ 0185. While this list is exemplary and Applicants contemplate other storage services, the functionality of *Dimitroff* does not include a “storage service” or similar functionality as recited in claim 1.

Dimitroff discloses a “bridge” that simply translates commands between devices that operate on different interconnect mediums. As *Dimitroff* summarizes, a “bridge having a non-SCSI front end and a SCSI back end provides firmware for virtualizing SCSI semantics onto a non-SCSI transport medium.” *Dimitroff*, col. 2, l. 67-col. 3, l. 2. The virtualization “of the SCSI semantics permits the non-SCSI transport medium to support SCSI devices.” *Id.* at col. 3, ll. 2-4. Accordingly, as understood, *Dimitroff* simply passes a command from an initiator operating on a first transport medium to a target operating on a second transport medium using the “bridge.” *Dimitroff* does not teach or suggest performing any actual “storage service” by the bridge as Applicants teach and claim.

The simple translation and passing of commands between devices on different transport mediums does not constitute a “storage service,” as claim 1 recites. Applicants’ Specification makes the distinction between “translation” and “storage services” clear. Applicants teach that “if a switch is coupled to a server that operates in accordance with one protocol and a storage device that operates in accordance with a second protocol, or vice versa, then the switch must perform protocol translation.” *Specification*, pp. 43-44, ¶ 0155. Applicants make clear that

“storage services,” on the other hand, are more than simple protocol translation. They include such actual storage processes as “local mirroring, mirroring over slow link, snapshot” etc. *Dimitroff*’s limited disclosure of protocol translation cannot be said to disclose the actual performance of a “storage service” by the bridge disclosed therein.

Dimitroff also fails to disclose the use of a “switch” to perform a “storage service,” as recited in claim 1. *Dimitroff*’s disclosure is directed to a “bridge,” and the disclosed system does not include a switch. Accordingly, *Dimitroff* further fails to teach or suggest the use of a “switch” to perform a “storage service,” as recited in claim 1.

Applicants further assert that if *Dimitroff* and *Blumenau* are combined, the resulting combination fails to teach or suggest “performing, by the switch, the storage service ... without buffering the data,” as recited in claim 1. The Examiner has cited *Blumenau* for disclosing a switch, noting the deficiency of *Dimitroff* in this regard. *Blumenau*, however, teaches caching data to fulfill storage access requests. Thus, if the system of *Blumenau* is combined with *Dimitroff*, the resulting combination fails to teach or suggest the performance by a switch of a storage service “without buffering the data,” as recited in claim 1.

The system cited in Figure 1 of *Blumenau* includes “a dual port cache memory 32, a plurality of port adaptors 35, 36 and a plurality of storage adaptors 37, 38.” *Blumenau*, col. 4, ll. 27-29. When a storage access request is received, the port adaptors first determine whether the data resides in the cache, where it can be quickly accessed. *Id.* at ll. 39-45. If it does not, “the port adapter forwards a storage access request to the storage adapters” which perform “a logical-to-physical translation to determine where the data to be accessed resides on the storage devices, and reads the data from the storage devices and writes the data to the cache memory, for access by the port adapter.” *Id.* at ll. 45-53. Accordingly, the cited storage controller of *Blumenau* utilizes caching and thus, fails to teach or suggest performing a “storage service” “without buffering the data” as recited in claim 1. If one were to combine *Blumenau* with *Dimitroff* as the Examiner suggests, the resulting combination would fail to teach or suggest, “performing, by the switch, the storage service without further involvement from the device, including transmitting any data required to be transmitted as a result of performing the storage service without buffering the data,” as recited in claim 1.

Because the combination of *Dimitroff* and *Blumenau* fails to teach or suggest each of the limitations of claim 1 as highlighted above, Applicants assert that claim 1 is patentable over the

cited art. Claims 2-10 each ultimately depend from claim 1 and therefore, should be patentable for at least the same reasons.

Claims 21-24

Claim 21 recites, among other limitations:

receiving, by the switch, a mirroring solicitation for a virtual target from a device in the storage network;

...

multicasting, by the switch, without buffering, the data to both members for writing in accordance with the flowID. *Emphasis added.*

Dimitroff does not disclose the concept of mirroring, and thus fails to teach or suggest either of these limitations. As noted above, *Dimitroff* is concerned with and directed to protocol translation between SCSI and fibre channel, not “storage services” such as “mirroring.” Moreover, *Dimitroff* does not teach or suggest the use of a “switch” to perform any of the functionality described therein.

As shown with respect to claim 1, the system of *Blumenau* teaches the use of a cache memory between the “port adaptors” coupled to the host devices and the “storage adaptors” coupled to the storage devices. *Blumenau*, col. 4, ll. 27-29; *Figure 1*. This cache memory results in data buffering between ports.

Accordingly, if the system and storage controller of *Blumenau* are combined with *Dimitroff*, the resulting combination would buffer data. Thus, the combination fails to teach or suggest “multicasting, by the switch, without buffering, the data to both members for writing in accordance with the flowID,” as recited in claim 1.

Because the combination of *Dimitroff* and *Blumenau* fails to teach or suggest each of the limitations of claim 21, Applicants assert that claim 21 is patentable over the cited art. Claims 22-24 each ultimately depend from claim 21 and therefore, should be patentable over the cited art.

IV. Objection to Claims 11-12

Applicants thank the Examiner for the indication of claims 11 and 12 as including allowable subject matter. As noted above, Applicants assert that independent claim 1 is

patentable over the cited art. By virtue of their dependency on claim 1, Applicants assert that claims 11 and 12 are patentable for at least the same reasons.

V. Conclusion

Based on the above amendments and these remarks, reconsideration of claims 1-12 and 21-26 is respectfully requested.

The Examiner's prompt attention to this matter is greatly appreciated. Should further questions remain, the Examiner is invited to contact the undersigned attorney by telephone.

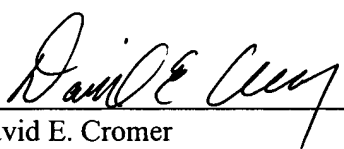
Enclosed is a PETITION FOR EXTENSION OF TIME UNDER 37 C.F.R. § 1.136 for extending the time to respond up to and including today, November 8, 2005.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 501826 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: November 8, 2005

By: _____


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